 25X1

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21 February 1956 P-101C

MEMORANDUM FOR: THE RECORD

SUBJECT : Monitoring of RD-54, Tasks I, III, IV, V

1, Time and Place: 8-10 February 1956, 25X1

2. Discussion:

a. The proposal for the model D IR transceivers was presented to Some changes were desired in the description of the handbook and were made. A breadboard of the model C was seen. 25X1

b. Range tests were made with the following results:

(1) Model C transmitter to Model C receiver (each 1" square aperture), Vacuum range $1\frac{1}{4}$ mile which would be equivalent to approximately one mile ACW.

(2) Model C (1" square aperture) to Model B, ACW range of greater than two land miles. Note that the mirror in this B model was below production standards in quality. More tests will be made using another mirror.

c. It is thought that round lenses will be most practical for manufacture and mounting. A round lens of the same aperture area as the 1" square would have approximately 1-1/8" diameter. The increase in vacuum range obtainable from a higher diameter lens will be approximately proportional to the increase in diameter. Thus a $1\frac{1}{4}$" diameter lens on the transmitter instead of 1-1/8" would give $\frac{1.250}{1.125}$ = 1.1 times the range with the 1-1/8" lens. If the larger lenses were used on both transmitter and receiver an increase factor of 1.1 X 1.1 = 1.2 would be expected.

d. Batteries - Tests were made with a 3/4 watt lamp loading the batteries intermittently at a 45 second "on", 45 second "off" duty cycle. Mallory RM12R cells yielded 2 hours of operation for two successive days and about one hour the third day. Gould Multi-Lite AA cells gave two hours operation one day and 15 minutes the second before recharging was necessary. Eveready AA cells gave 30 minutes the first day, 20 minutes the second, and 10 minutes the third. 25X1

e. The amplifier will

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e. The amplifier will have a pair of transistors operating class B in the final stage. It appears that the output should be sufficient to drive the galvanometer. No fuze will be necessary in the galvanometer circuit as the maximum permissible power for the galvonometer exceeds the maximum obtainable from the amplifier by 50%.

f. With the transistorized circuitry it will be impractical to have a neon glow modulation light as they consume too much power. A visible observation hole (with cover) is contemplated.

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TSS/APD

Distribution:
1 - P-101C
1 - RTW
1 - Chrono

REW/lj